

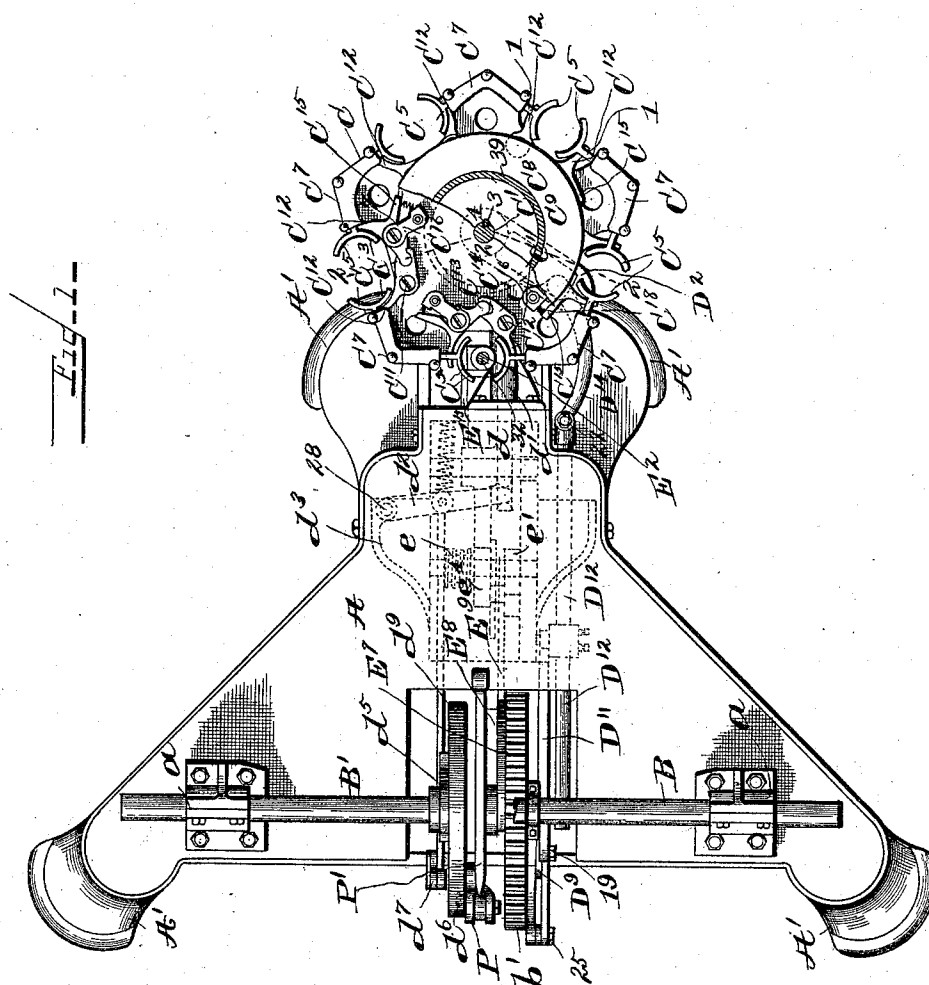
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8 Sheets—Sheet 1.

S. WILE & H. LA CASSE.
CARRIER FOR BOTTLE WIRING MACHINES.

No. 537,877.

Patented Apr. 23, 1895.



WITNESSES:

G. A. Taubenschmidt,
Jesse Kungberg

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BY
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ATTORNEYS.

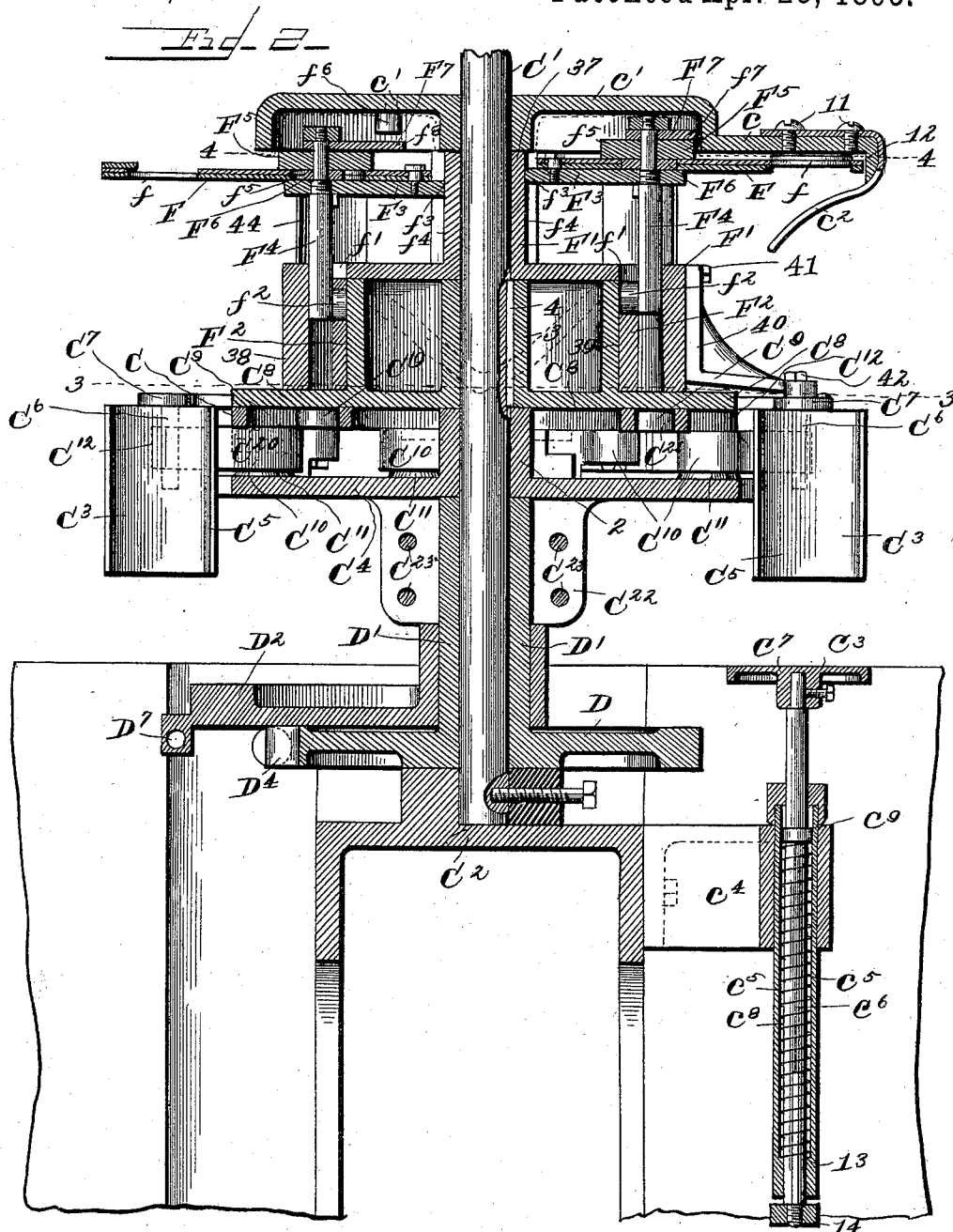
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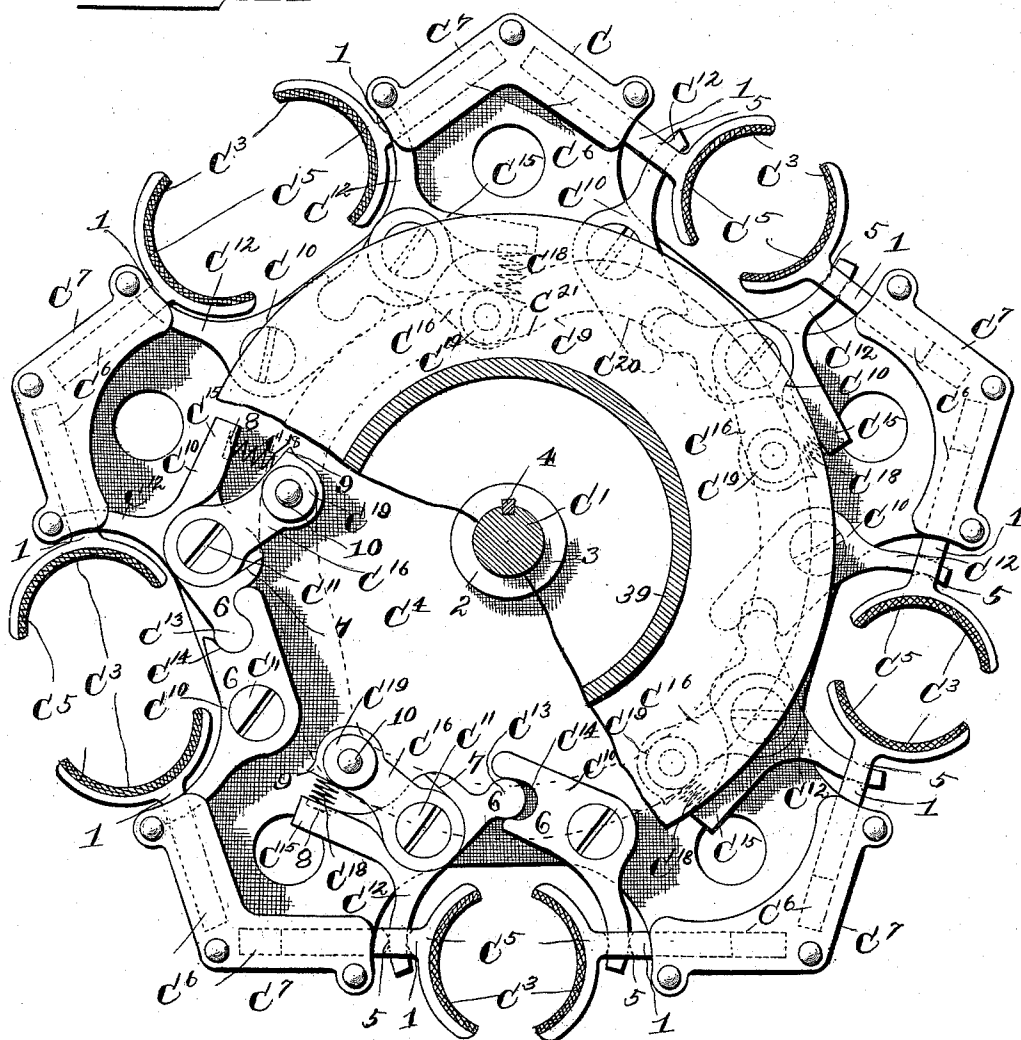
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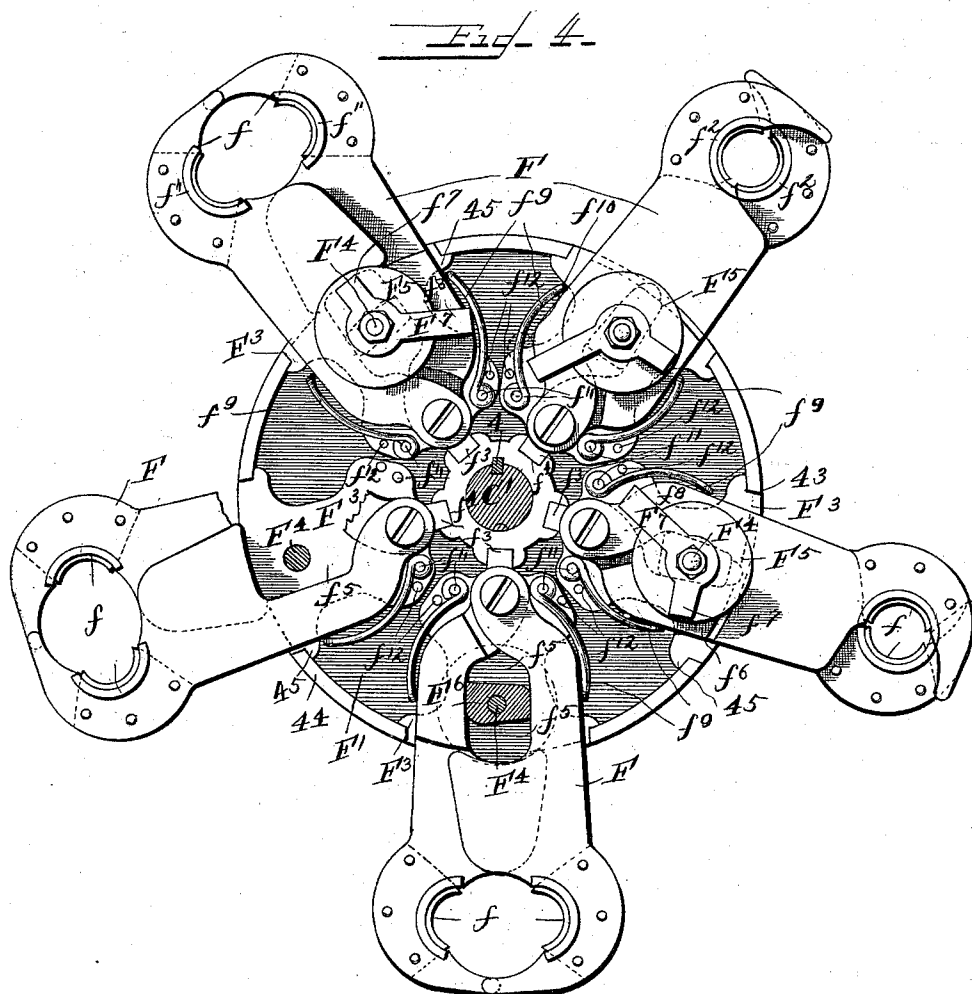
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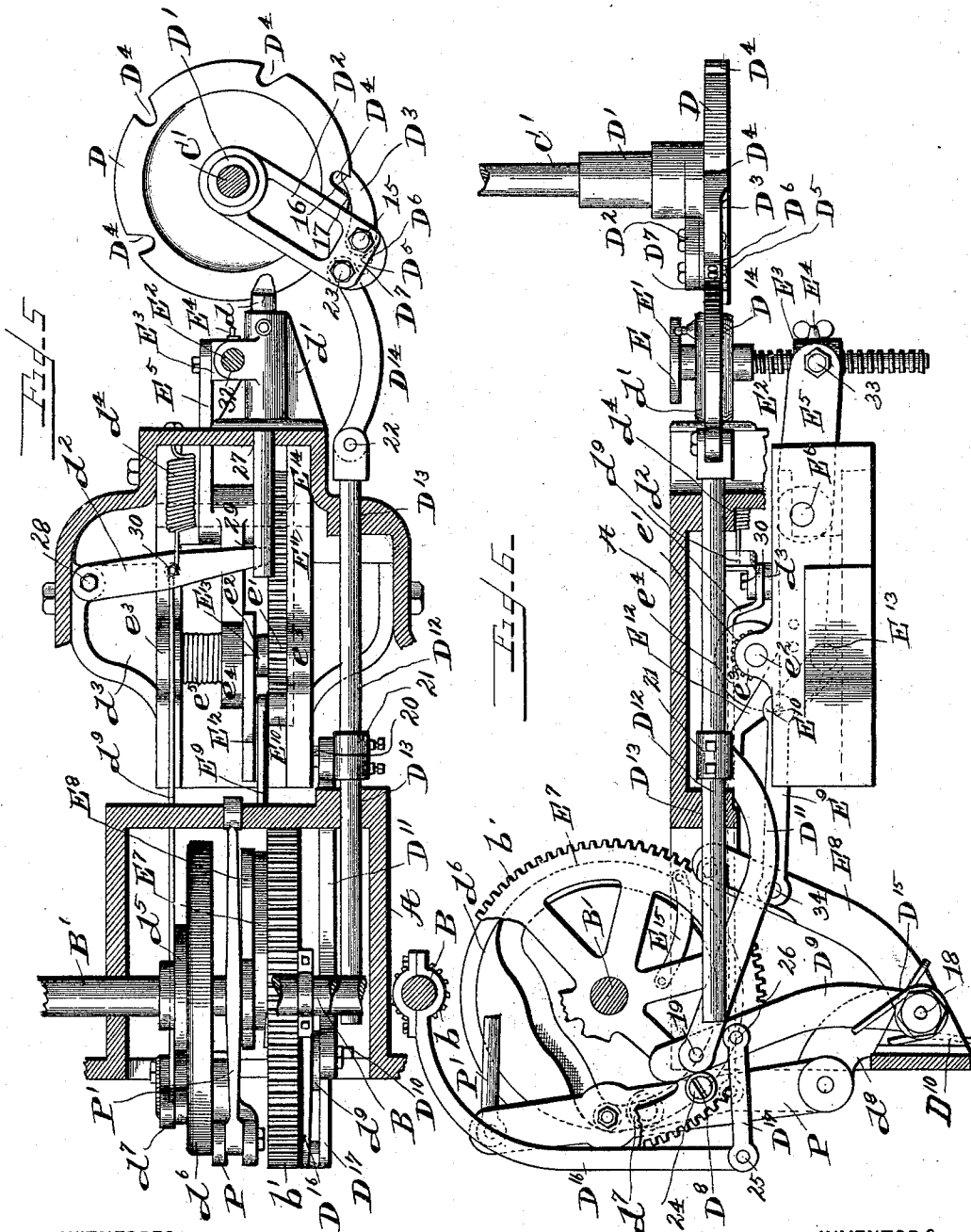
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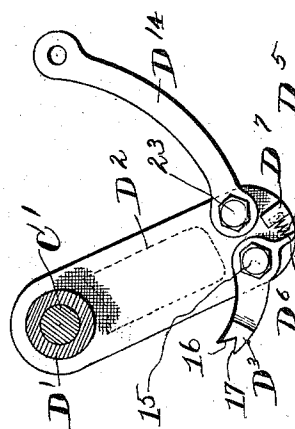
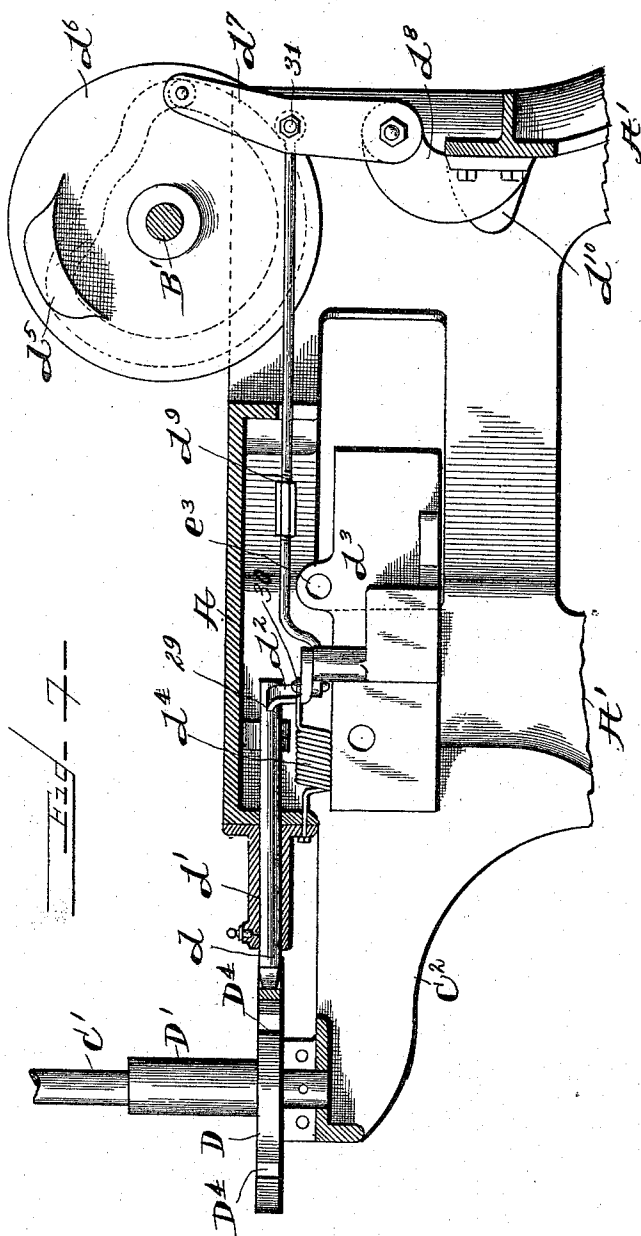
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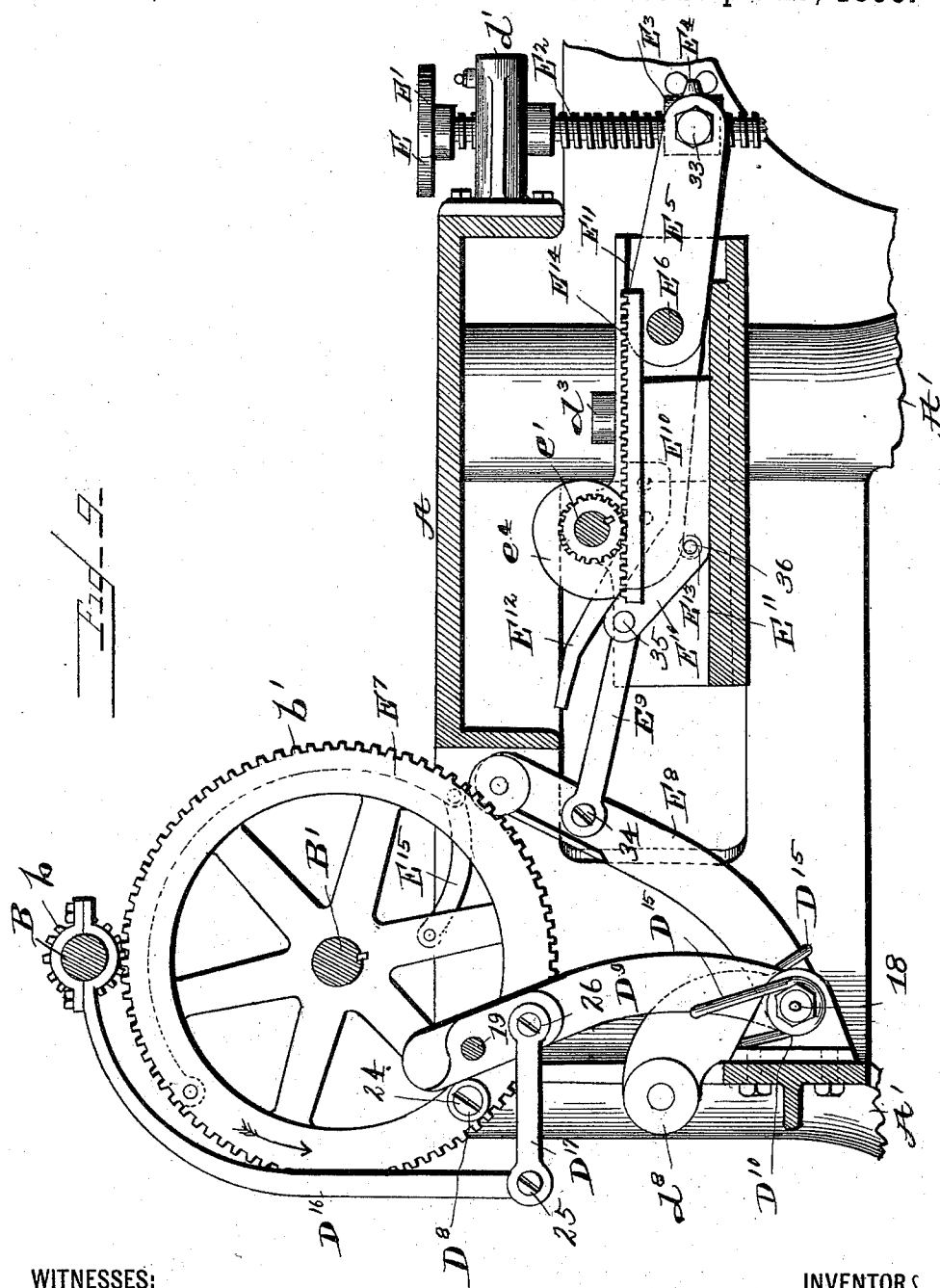
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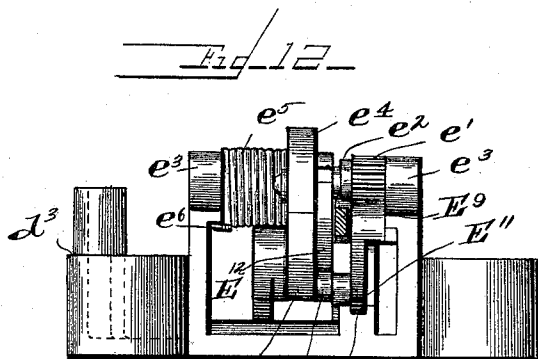
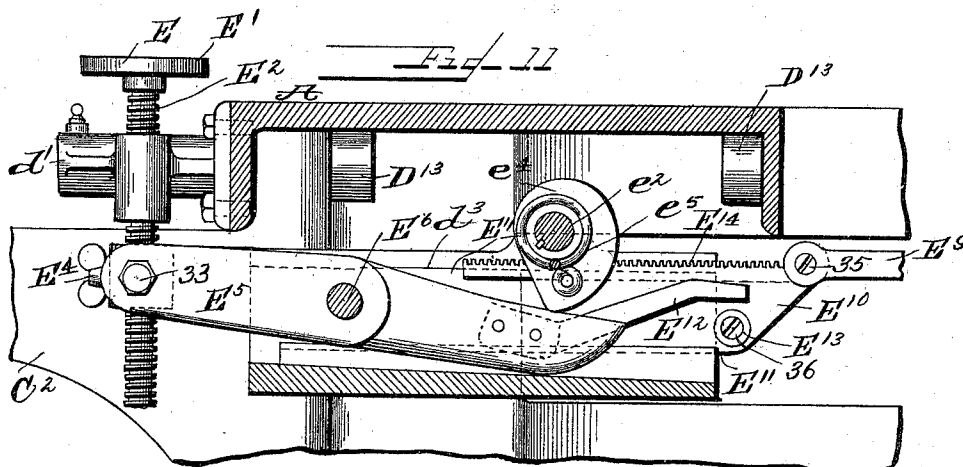
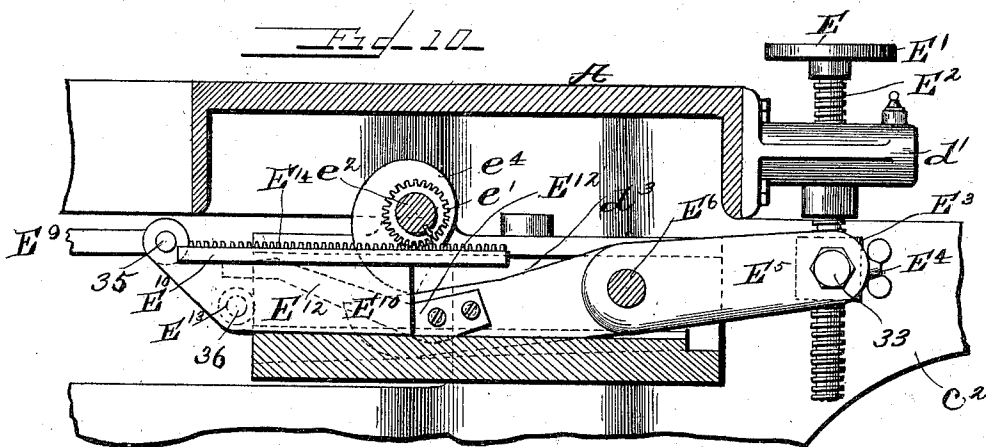
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UNITED STATES PATENT OFFICE.

SOL WILE AND HENRY LA CASSE, OF ROCHESTER, NEW YORK.

CARRIER FOR BOTTLE-WIRING MACHINES.

SPECIFICATION forming part of Letters Patent No. 537,877, dated April 23, 1895.

Application filed June 20, 1892. Serial No. 437,317. (No model.)

To all whom it may concern:

Be it known that we, SOL WILE and HENRY LA CASSE, of Rochester, in the county of Monroe, in the State of New York, have invented new and useful Improvements in Carriers, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

Our invention relates to improvements in feeds or carriers particularly applicable for use in the bottling machine set forth in our patent, dated June 21, 1892, No. 477,617, and has for its object the production of a simple, practical and effective device which feeds articles with the required speed and precision to the required position. To this end it consists, essentially, in a movable support or frame and oppositely arranged grasping jaws movable lengthwise toward and away from each other; in supports for the articles to be grasped, and in connected mechanism for operating the grasping jaws and the main support.

The invention furthermore consists in the detail construction and arrangement of its parts, all as hereinafter more particularly described and pointed out in the claims.

In describing this invention, reference is had to the accompanying drawings forming a part of this specification, in which like letters and numerals indicate corresponding parts in all the views.

Figure 1 is a top plan view of our improved feed or carrier and its actuating mechanism, part of which is beneath its supporting frame and is shown by dotted lines. Fig. 2 is an enlarged vertical sectional view of the carrier taken on line 2—2, Fig. 1, illustrating, particularly, the construction of the supporting or grasping jaws, the lifting arms or levers above said jaws, and the yielding support beneath said jaws. Fig. 3 is an enlarged horizontal sectional view, taken on line 3—3, Fig. 2, illustrating particularly the construction and operation of the lifting arms or levers. Fig. 5 is an enlarged horizontal sectional view of the mechanism for actuating the movable frame of our feed or

carrier, the parts being shown as in the position assumed when the frame is at rest. Fig. 6 is an elevation of the parts as illustrated at Fig. 5. Fig. 7 is an enlarged vertical sectional view, illustrating the construction and operation of the lock for the movable frame carrying the grasping jaws. Fig. 8 is an enlarged plan view of the lever and the dog for rotating said movable frame. Fig. 9 is an enlarged vertical sectional view of the mechanism for raising and lowering the main bottle support. Fig. 10 is a view, similar to Fig. 9, illustrating the support in its elevated position. Fig. 11 is an elevation of the opposite side of the mechanism shown at Fig. 10; and Fig. 12 is a rear elevation of the bottle support and its raising and lowering mechanism shown at Figs. 9, 10 and 11.

In our previous patents, Nos. 443,098 and 443,184, both dated December 23, 1890, we have shown feed or carrier mechanisms in which the articles to be supported are engaged by oppositely arranged faces mounted on oscillating or swinging levers, and in the practical use of such mechanisms, we have discovered that when the articles to be engaged vary in diameter or width, they are so arranged by the action of said faces and their supporting levers that their vertical centers are either beyond or within the plane of the corresponding center of an article of the designed size when supported by said engaging faces. These mechanisms are intended for operation in connection with the bottling machines set forth in our Patent No. 443,185, dated December 23, 1890, comprising certain mechanisms for securing strands of wire to a bottle neck, passing the strands over the top of the bottle and the inserted cork, and for securing the wire in said position, and consequently, the vertical center of each bottle must be supported in the same plane when presented to these actuating mechanisms, as otherwise, their action is impaired and their operation rendered ineffectual.

In our present invention, the bottles or other articles to be supported are engaged by grasping jaws movable lengthwise toward and away from each other in the same or substantially parallel planes, and consequently, the vertical center of each bottle or other article is

always in the same position, irrespective of the size of said article. We also use in our present invention a particularly practical and efficient yielding support for registry with the articles to be supported in position for engagement by the grasping jaws, a main support for supporting the base of the articles when fed to the desired position, and mechanism for operating the movable frame carrying the grasping jaws and for raising and lowering the main bottle support.

—A— represents the table of our invention, which is of suitable form, size and material, and is supported upon suitable legs or standards —A'—.

—B— is a motor shaft supported in suitable brackets —a—a—, Fig. 1, mounted on the table —A—. Power may be communicated to this motor shaft by any suitable construction of power transmitting mechanism, and we have, for the purposes of our present invention, thought it unnecessary to illustrate any particular form.

Directly beneath the shaft —B— and journaled in the brackets —a—a— is a second shaft —B'— and mounted respectively upon the shafts —B— and —B'— are gears —b— and —b'— for communicating motion to the lower shaft.

The movable support or frame —C— of our improved feed or carrier mechanism, may be of any desirable form, size and construction for supporting the grasping jaws and the hinged levers above said jaws and for effecting and permitting of the operation of said parts.

—C'— represents a stationary cylindrical rod, which, as best seen at Fig. 2, is supported at its base in a bearing —C²— projecting from one of the standards —A'— and may be supported at its top by a bearing, not illustrated. Loosely journaled upon this rod —C'— is a disk —C⁴— forming part of the frame —C—. Upon this disk are supported the grasping jaws —C⁵— having their adjacent faces concaved and preferably provided with rubber or other yielding faces —C³— for tightly grasping the articles to be supported. The extremities of the jaws are provided with shanks —1— movable in guides —C⁶— formed in an upright flange —C⁷— at the edge of the disk —C⁴—.

As preferably constructed, the jaws —C⁵— are arranged in pairs and each pair is arranged at an angle with the adjacent pairs. As we have here shown five pairs of jaws, the flange —C⁷— is pentangular. The guides —C⁶— are arranged in substantially the same lengthwise planes and are diametrically opposite to a common center.

As presently described, the jaws are moved toward and away from each other at uniform or equal speed, and consequently, as they are moved lengthwise in the same plane, the vertical center of the articles supported thereby is always coincident with the common center of said jaws and is not changed when the

size of the article varies, as is the case with the hinged or oscillating grasping levers or arms shown in our previous feed or carrier mechanism Patents Nos. 443,098 and 443,184. It will be evident, however, that this same action of the grasping jaws is produced if their guides —C⁶— and shanks —1— are arranged in parallel instead of coincident lengthwise planes.

Above the jaw holding disk —C⁴— and resting upon an upturned hub —2— thereon, is a stationary cam plate also forming part of the frame —C— and this plate is provided with a cam-way —C⁹— for opening and closing the jaws and is formed with an upturned hub —3— secured by a key —4— to the rod —C'—.

—C¹⁰— designates levers arranged in pairs and pivoted at —C¹¹— to the disk —C⁴— for forcing the adjacent jaws —C⁵— to their open and closed position. One of each of these pairs of levers is formed with three arms, one of which —C¹²— engages a slot —5— in the forward extremity of the adjacent shank —1—. A second arm —6— of the three armed levers —C¹⁰— is formed with a rounded end or projection —C¹³— adapted to register with a correspondingly rounded socket —C¹⁴— in the adjacent extremity of a corresponding arm —6— on the opposite lever —C¹⁰—. The third arm —C¹⁵— of said levers —C¹⁰— is extended rearwardly or inwardly from the arms —C¹²— and is provided with a spring engaging shoulder —8— and a second engaging shoulder —7—.

A lever —C¹⁶— is loosely mounted on the pivot —C¹¹— of each of the three armed levers —C¹⁰— and interposed between a shoulder —9— on said lever and the shoulder —8— of the adjacent arm —C¹⁵— is a spring —C¹⁸— that tends constantly to force the adjacent jaw —C⁵— into its open position.

Provided upon the free extremity of the lever —C¹⁶— is a stud or roller —C¹⁹— loosely mounted on a pin or spindle —10— and adapted to ride in the cam-way —C⁹—.

As previously stated, the levers —C¹⁰— are arranged in pairs and each lever of each pair is provided with an arm —C¹²— for engaging a slot —5— in the adjacent grasping jaw, but only one of the levers of each pair is provided with an arm —C¹⁵— since a single lever —C¹⁶— can operate both of the jaws of the adjacent pair as their adjacent arms —6— are locked together by the projection —C¹³— and socket —C¹⁴—.

As best seen at Fig. 3, when the cam tooth —C²⁰— of the cam-way —C⁹— is registered with the roller —C¹⁹—, the lever —C¹⁶— is forced toward the arm —C¹⁵— of the adjacent three armed lever —C¹⁰— and by means of the compressed spring —C¹⁸— and the interlocking ends of the arms —6—, rocks the adjacent pair of levers —C¹⁰— on their pivots and forces the jaws connected thereto into engagement with the article interposed between the same. On the other hand, when the depression

—C²¹— is registered with the roller —C¹⁹—, the lever —C¹⁶— is rocked backwardly against the shoulder —7— and the grasping jaws are retracted or opened for the purpose of releasing the article engaged thereby. It will thus be understood that the jaws —C⁵—C⁵— are uniformly moved toward the interposed article and that the same is so supported that its vertical center is coincident with the common center of said jaws and that the centers of articles of varying diameters or widths are always in the same vertical plane. If the diameter or thickness of said article or bottle is a little larger than the gage for which the parts are adjusted, the spring —C¹⁸— becomes a trifle more compressed than usual and allows the jaws to adapt themselves without any liability of breakage of said article.

—c—, Fig. 2, represents a gage with which the tops of the articles or bottles to be engaged with our feed are brought into contact when inserting the same into position for engagement. This gage may be of any desirable form, size and construction, but preferably consists of an arm formed upon a disk —c'— rigidly secured to the rod —C'— above the cam —C⁸—.

—c²— represents a guard having one end secured by screws —11— to the gage arm —c— and the other bent downwardly and beneath the plane of said gage arm. This guard aids greatly in holding in position, for engagement with the grasping arms, the articles or bottles to be engaged thereby, as the side of their upper extremity is brought into contact with the edge of said guard. The gage arm —c— is usually formed at its outer extremity with a depending flange —12— with which the top of said articles may be registered for further aiding the operator in holding them in proper position for engagement.

Beneath the gage —c— is the yielding support —c³— which forces the articles or bottles firmly against the gage —c— and brings the top of each to the same plane, in order that if the carrier is so arranged and connected as to submit the articles held thereby to the action of other mechanisms, they may effect a very perfect operation, which would usually be impossible if the tops of the articles were in different horizontal planes.

—c⁴— represents a bracket secured to the bearing —C²— for supporting the support —c³—. Mounted upon this bracket is a hollow shell or tube —c⁵— for receiving a rod —c⁶— depending from the top plate —c⁷— of the support —c³—. Loosely coiled around the rod —c⁶— is a spring —c⁸— having one end bearing against a shoulder —13— at the lower extremity of the shell —c⁵— and the other against a shoulder —c⁹— secured to the rod —c⁶—. The lower end of the rod —c⁶— projects beneath the corresponding end of the shell —c⁵— and is provided with an adjustable stop shoulder —14— for limiting the upward movement of the yielding support —c³—.

As presently described, the disk —C⁴— carrying the grasping jaws —C⁵— is revolved around the rod —C'—, and consequently the grasping jaws and the cam —C⁸— are so arranged that the jaws are forced to their open position, before their alignment above the yielding support —c³— for permitting discharge or withdrawal of the article previously engaged thereby and said parts are so arranged that the jaws remain open when directly above the support —c³— for facilitating the entrance of articles between said jaws and between the gage —c— and the yielding support —c³—. As the jaw carrying disk —C⁴— continues its revoluble movement, the jaws —C⁵— are clamped upon the interposed article for firmly engaging the same before it is entirely moved from above the support —c³—.

The described construction of gage and yielding support is particularly simple, practical and effective and facilitates the ready retention of articles in proper position for engagement by the grasping jaws of our invention.

—D— represents a disk which is mounted directly above an upwardly extending hub of the bracket —C²— and is loosely mounted on the rod —C'— and suitably connected to the grasping jaw carrying disk —C⁴— for rotating the same around the rod —C'—. As preferably constructed, the disk —D— is formed with an upwardly extending hub —D'— and the disk —C⁴— is formed with a split hub —C²²— encircling the hub —D'— and movable lengthwisely thereon should it be desired to adjust the grasping jaws vertically. The split hub —C²²— is provided with clamps —C²³— for securing the same to the hub —D'— in order that as the disk —D— is revolved, the disk —C⁴— may also be revolved.

Above the disk —D—, as best seen at Figs. 5 and 6, is an arm —D²— movable in substantially a horizontal plane and having one extremity loosely mounted on the hub —D'—. The other extremity of the arm or lever —D²— is provided with a dog —D³— having one end hinged thereto by a pin —15—. This dog is constantly forced into engagement with the notches —D⁴— by a spring —D⁵—, Fig. 8, interposed between shoulders —D⁶— and —D⁷— formed, respectively, on the dog —D³— and the arm —D²—. The free end of the dog —D³— is formed with an inwardly extending notch having shoulders —16— and —17—. In operation, the free end of the dog enters one of the notches —D⁴—, the shoulder —16— bears against the adjacent wall or shoulder of said notch —D⁴— and the shoulder —17— against the periphery of the disk —D—.

Motion is communicated to the lever or arm —D²— by a cam —D⁸— upon the lower shaft —B'—. This cam preferably consists of a roller upon the gear —b'— and is adapted to contact with the upper extremity of an upright lever —D⁹— having its lower extremity pivoted to a bracket —D¹⁰—. A suitable

spring—D¹⁵—is wound around the pivotal pin—18— of the lever—D⁹— and tends to retract said lever more or less, although said spring is intended more particularly to force back-

wardly a lever—E⁸— presently described.

—D¹¹— is a connection or link having one extremity loosely pivoted at—19— to the upper end of the lever—D⁹— and the other loosely pivoted at—20— to a movable collar—21— on a sliding rod—D¹²—. The rod—D¹²— is movable in ways—D¹³—D¹³— beneath the top face of the table—A—, and its forward end is loosely hinged at—22— to the rear end of a link—D¹⁴—, loosely hinged at—23— to the free end of the lever—D²—.

The cam—D⁸— preferably consists of an anti-friction roller mounted on a stud—24— projecting from the gear—b'—, and as said roller contacts with the lever—D⁹—, the connections—D¹¹—D¹²— and—D¹⁴— rock the lever—D²— forwardly and partially rotate the disk—D— and the movable frame—C—, for aligning a pair of open jaws with the yielding support—c³— and removing the article previously inserted between the gage—c— and said support—c³— to the first stopping point where may be presented or secured any suitable mechanism for operating upon the article engaged by said jaws.

It will be noted that the peculiar construction of the lever—D²—, dog—D³— and link—D¹⁴— enables the dog to remain constantly in engagement with the notch—D⁴— even though motion is transmitted thereto by a rectilinearly movable rod—D¹²—.

As the cam—D⁸—continues its revolution, it passes from engagement with the lever—D⁹— and engages a second pivoted lever—D¹⁶— suitably connected to the lever—D⁹— for returning the same to its normal position. The upper extremity of the lever—D¹⁶— is curved forwardly and is hinged upon the shaft—B— and the lower extremity of said lever depends downwardly beneath said shaft and its front face is adapted to be engaged by the cam—D³—.

The preferable form of connection between the levers—D¹⁶— and—D⁹— consists of a hinged connection—D¹⁷— having its rear end hinged at—25— to the lower end of the lever—D¹⁶— and its forward end hinged at—26— to the upper end of the lever—D⁹—. Consequently, as the lever—D⁹— is forced forward by the cam—D⁸— in order to rotate the movable carrier frame—C—, the link—D¹⁷— draws the depending end of the lever—D¹⁶— forwardly in position for engagement by the cam—D³— as the same continues its revolution, whereupon, the cam forces said lever backwardly and withdraws the lever—D⁹— to its normal position, and as previously described, the return movement of the lever—D⁹— is somewhat accelerated by the spring—D¹⁵—.

—d— represents a lock for holding the movable jaw carrying frame—C— stationary. As here illustrated, this lock consists of a

rectilinearly movable rod guided in an opening—27— in the front face of the table—A— and in a movable bracket—d'— projecting from the forward face of the table. The forward end of the locking rod—d— projects beyond the bracket—d'— and is adapted to engage the notches—D⁴— in the disk—D— and lock the same from further movement until the withdrawal of said rod.

—d²— is a lever having one end pivoted at—28— to a box shaped bracket—d³— mounted beneath the top wall of the table—A— and the other or inner end engaged with a slot—29— in the rear end of the rod—d— for forcing the same forward and backward.

—d⁴— is a spring having one end pivoted to a post—30— upon the lever—d²— and the other secured to the front face of the table or frame—A— for normally forcing the outer end of the locking rod—d— against the periphery of the disk—D—, whereupon it readily enters one of the notches—D⁴— upon registration therewith occasioned by the revolution of the disk—D—.

The lock—d— is withdrawn from operation by a cam tooth—d⁵— upon a cam disk—d⁶— mounted on the shaft—B'—. This cam tooth—d⁵—, best seen at Fig. 7, encounters the upper extremity of an upright lever—d⁷— having its lower end pivoted to an upwardly extending arm—d⁸— of the bracket—D¹⁰—. A suitable connection—d⁹— communicates motion from the lever—d⁷— to the lever—d²—, its rear extremity being hinged at—31— to the lever—d²— and its forward extremity being hinged to the post—30— on the lever—d²—. As by the revolution of the shaft—B'—, the cam disk—d⁶— is revolved, the cam—d⁵— encounters the upper end of the lever—d⁷— and forces the same backwardly, thus rocking the inner end of the lever—d²— backwardly against the action of the spring—d⁴— and withdrawing the outer end of the lock—d— from engagement with the opposite notch—D⁴— of the disk—D—. The cam—D⁸—, just described, for rotating the disk—D—, and the cam—d⁵— are so timed in relation to each other that the latter operates before the former in order to release the former before the operation of the mechanism for rotating the movable jaw carrying frame.

—E— represents the main support of our improved invention, Figs. 6, 9, 10, and 11, which is brought into contact with the base of the articles or bottles engaged by the grasping jaws—C⁵— in order to support the same during the subsequent operations of the devices in connection with which our carrier or feed may be used. This support—E— is so arranged in relation to the yielding support—c³—, previously described, and the notches—D⁴— of the actuating disk—D—, that the movement of the grasping jaws from their starting to their first stopping position, removes the article engaged thereby from the yielding support—c³— to a point directly over the main support—E— which is then raised

upwardly into contact with the base of said article. By thus bringing the tops of the articles engaged by the grasping jaws to the same horizontal plane and raising and lowering the support —E—, the utility of our feed or carrier is enhanced since said articles may vary in length and would otherwise become injured by the subsequent movement of mechanisms for operating thereupon.

10 The support —E— preferably consists of a plate —E'— and a downwardly extending shank —E²— passed through a plain opening —32— in the bracket —d'—. The shank —E²— is preferably screw threaded and
15 mounted upon the same beneath the bracket —d'— is a screw threaded hub —E³— for permitting vertical adjustment of the support —E—. The shank —E²— is firmly held in its adjusted position by a screw or other clamp —E⁴— movable in the hub —E³— and adapted to engage the periphery of said shank.

—E⁵— represents a rocking lever pivoted at —E⁶— to the box shaped frame —d³— with its free extremity hinged by oppositely arranged screws —33—33— to the screw threaded hub —E³—. The rear extremity of the lever —E⁵— is adapted to be elevated or depressed by a cam —E⁷— and springs —e⁵— and —D¹⁵— best seen at Figs. 5, 6, 9, 10, 11
30 and 12. The cam —E⁷— is mounted upon the gear —b'—, previously described, and contacts with the upper extremity of a substantially upright lever —E⁸— having its lower extremity hinged to the bracket —D¹⁰— by the pivot —18— for hinging the lever —D⁹— previously described. A suitable link —E⁹— is loosely hinged at —34— to the upper end of the lever —E⁸— and at its forward end at —35— to the rear end of a sliding block or
40 bar —E¹⁰— movable to and fro in guides —E¹¹— formed in the bracket —d³—. As presently described, the springs —e⁵— and —D¹⁵— normally force the support —E— to its elevated position and the rear extremity of the lever —E⁵— to its depressed position, as best seen at Figs. 10 and 11. Projecting from the rear extremity of the lever —E⁵— is an arm —E¹²— against which, by the forward movement of the bar —E¹⁰—, is forced a suitable bearing face consisting preferably of a roller —E¹³— journaled upon a stud —36— projecting from the side of said bar.

—e'— represents a pinion which is keyed to a shaft or spindle —e²— loosely journaled in upwardly extending lugs —e³—e³— on the bracket —d³— and is adapted to engage rack teeth —E¹⁴— upon the sliding bar —E¹⁰—. Rigidly mounted on the spindle —e²— is a cam —e⁴— to which is secured one end of a
60 spring —e⁵— having its opposite extremity —e⁶— secured to the bracket —d³— whereby the spring —e⁵— tends constantly to rotate the cam —e⁴— in order to force downward the rear extremity of the lever —E⁵— and to
65 elevate the bottle support. The tension of the spring —e⁵— is, however, insufficient to

rotate the pinion —e'— through the medium of the rack teeth —E¹⁴— and retract the sliding bar —E¹⁰—, and consequently, the cam —e⁴— only forces the rear extremity of the lever —E⁵— downward when said bar —E¹⁰— is retracted. 70

As the cam —E⁷— contacts with the lever —E⁸—, the upper end of said lever is forced forwardly and the roller —E¹³— elevates the rear end of the lever —E⁵— and depresses the support —E— and after the passage of said cam from engagement with the lever —E⁸—, the same spring —D¹⁵— that withdraws the lever —D⁹— retracts the lever —E⁸— and draws the sliding block —E¹⁰— backwardly, thus causing the rack teeth —E¹⁴— to rotate the pinion —e'— forwardly and enabling and aiding the spring —e⁵— to rotate the cam —e⁴— for depressing the rear end of the lever —E⁵— and elevating the support —E—. Consequently, the upward movement of the support —E— is effected by the springs —D¹⁵— and —e⁵— and there is no liability of fracture of the articles engaged by the jaws directly above said support, as the same is elevated. Notwithstanding this easy upward movement of the support, the same is rigid when in engagement with the article above the same, since the cam —e⁴— is interposed between the firmly supported spindle —e'— and the rear end of the lever —E⁵—, and the support remains in this firm position until the lever —E⁸— is again forced forwardly by the cam —E⁷—. A too rapid elevation of the support —E—, by the springs —D¹⁵—e⁵— is prevented by a forwardly extending end —E¹⁵— upon the cam —E⁷—. 95

It is readily apparent, upon reference to the description of the support of our present invention, that its parts are simple in construction; that the same is positively and effectually depressed before the alignment therewith of the article to be supported; that it is raised upwardly by spring pressure, thus enabling it to adjust itself to the length of said article; that it may also be adjusted vertically, and is practical and efficient in operation. 105

Our present invention is provided with a series of levers —F— arranged in pairs directly above each pair of grasping jaws —C⁵—. These levers are preferably supported by a revoluble disk —F'— which is mounted above the cam —C⁸— and beneath the disk —c'— and is provided with an upwardly extending hub —37— and a downwardly extending flange —38—. These levers are very similar in construction and operation to those set forth in our previous Patent No. 443,098. The free extremities —f— of the levers —F— are adapted to encircle the article interposed between the grasping jaws —C⁵— for additionally supporting the same, and may be suitably formed to effect said support. 120

—F²— represents a stationary cam secured to an upwardly extending flange —39— of the 130

cam —C⁸— and since, as previously stated, said cam is stationary, being fixed to the rod —C'—, the cam —F²— is also stationary.

40— represents ties between the disk 5 —F'— and the movable grasping jaw carrying frame —C— for effecting the revolution of the disk —F'— as the frame —C— is revolved. The upper ends of these ties are secured by bolts or other clamps —41— to the disk —F'— and their lower ends by clamps 10 —42— to the frame —C—.

The inner ends of the levers —F— are pivoted to plates —F³— which are supported on one end of upright rods —F⁴— having their 15 lower extremities passed through openings —f'— in the supporting disk —F'— and provided with a stud —f²— which rides in the cam-way of the cam —F²—, thus elevating and depressing said levers, as by the revolution of 20 the movable frame —C—, they are moved around the cam —F²—. The levers —F— are guided in this movement by means of projections —f³— formed on one or both of the levers of each pair and adapted to move vertically 25 in upright grooves or guides —f⁴— in the hub —37— of the disk —F'—. The levers are further guided in this up and down movement by the plates —F³—, the forward ends of which project through upright slots —43— 30 in a flange —44— extending upwardly from the top face of the disk —F'—. At the opposite extremities of the outer ends of each of these plates are shoulders —45— for bearing against the inner periphery of the flange 35 —44—.

—F⁵— represents a plate or disk journaled above each pair of the levers —F— upon the upwardly projecting end of the rod —F⁴— supporting said pair. Beneath, and rigid 40 with, this plate, is a cam —F⁶— movable in recesses —f⁵— in the adjacent sides of the elevating levers —F—, and rigidly secured to the top of the plate —F⁵— is the double armed lever —F⁷— having its opposite extremities 45 adapted to be engaged by pins —f⁶—f¹⁰— depending from the stationary gage carrying disk or plate —c'—. As the disk —F⁵— is revolved, the pin —f⁶— engages the short arm —f⁷— of the lever —F⁷—, and rocks it into 50 the position shown at the right hand on Fig. 4, thereby approximating the adjacent outer ends —f—f— of the levers —F—. The second pin —f¹⁰—, shown by dotted lines at Fig. 4, and arranged opposite to the former 55 pin —f⁶—, by the further revolution of the disk —F'— encounters the longer arm —f⁸— of the lever —F⁷— and then rocks the cam —F⁶— into the position shown at the left hand of Fig. 4 for opening the outer ends —f—f— 60 of the levers —F—. The cam —F⁶— is so shaped as to lock the levers from movement in either their open or closed position, and springs —f⁹— bear against the outer faces of said levers for causing their inner faces to 65 bear firmly against the said cams F⁶.

The springs —f⁹— for normally forcing the free ends of the levers —f—f— toward each

other, each consist of a curved bar having its inner end mounted on a post —f¹¹— on the inner end of the plate —F³— carrying said 70 levers and its outer end bearing against the outer edge of the adjacent lever —F—. Suitable stops —f¹²— mounted on the plate —F³— limit the outward movement of said springs.

When attached to the bottling machine 75 shown in our patents dated, respectively, December 23, 1890, No. 443,184, and June 21, 1892, No. 477,617, the levers —F—F— serve to elevate the outwardly extending extremities of strands of wire secured to the tops of 80 the bottles and to force said extremities together over the top of the bottle and the inserted cork.

It is evident that our improved feed or carrier may be attached to machines other than 85 those set forth in said patents; that the levers —F—F— may also be used for other purposes, and their construction may be suitably changed or modified to conform to their desired operation. 90

At Figs. 1, 5 and 6, we have shown an upright lever —P— having its lower end hinged to the bracket —D¹⁰— and its upper end hinged to the rear end of a link —P'—, the front end of which, when our present inven- 95 tion is connected to the bottling machine shown and claimed in our aforesaid patent, dated June 21, 1892, No. 477,617, is suitably connected to communicate motion to mechanism for holding the wire when being se- 100 cured to the bottle engaged by our feed or carrier and for cutting said wire at the proper time. It is evident that these parts form no part of our present invention and may be 105 dispensed with if desired as they merely illustrate that other mechanisms may be operated by the shaft for operating our present invention.

The operation of our invention will be readily perceived from the foregoing description 110 and upon reference to the drawings, and it will be particularly noted that the same is simple and effective; that its component parts are strong and durable, and readily assembled in position, and that when assembled they 115 form a positive and efficient device for feeding bottles and similar articles. It is evident, however, that the detail construction and arrangement of the parts of our improved feed or carrier may be somewhat varied from that 120 described and shown without departing from the spirit of our invention. Hence we do not herein limit ourselves to such detail construction and arrangement.

Having thus fully described our invention, 125 what we claim as new, and desire to secure by Letters Patent, is—

1. In a carrier, the combination of a support, a grasping jaw carried by said support, and a second jaw oppositely arranged to the former 130 jaw and movable rectilinearly toward the former jaw, substantially as and for the purpose set forth.

2. In a carrier, the combination of a support

and a pair of diametrically opposite jaws on said support movable rectilinearly toward each other in planes substantially coincident with each other, substantially as and for the purpose specified.

3. In a carrier, the combination of a support having oppositely arranged upright bearings provided with oppositely arranged guides, having their lengthwise planes substantially coincident with each other and jaws having their opposite extremities rectilinearly movable in said guides, substantially as and for the purpose set forth.

4. In a carrier, the combination of a support, provided with a guide a pair of diametrically opposite jaws, one of said jaws being movable rectilinearly in said guide toward and away from the other jaw and a lever for actuating the movable jaw, substantially as and for the purpose specified.

5. In a carrier, the combination of a support, a pair of diametrically opposite jaws, a lever for moving one of the jaws toward the other, and a spring bearing against the lever for preventing breakage of articles by said jaw, substantially as and for the purpose set forth.

6. In a carrier, the combination of a support, provided with a guide a pair of diametrically opposite jaws, one of said jaws being movable rectilinearly in said guide toward and away from the other jaw, a lever for actuating the movable jaw, a second lever for operating the former lever, and a cam for rocking the latter lever, substantially as and for the purpose specified.

7. In a carrier, the combination of a support, a pair of diametrically opposite jaws, a lever for moving one of the jaws toward the other, a second lever for operating the former lever, a cam for rocking the latter lever, and a spring interposed between said levers, substantially as and for the purpose set forth.

8. In a carrier, the combination of a support, provided with opposite guides a pair of diametrically opposite jaws movable rectilinearly in said guides toward and away from each other, and a toggle between said jaws for operating both simultaneously, substantially as and for the purpose specified.

9. In a carrier, the combination of a support, a pair of diametrically opposite jaws, a toggle between said jaws for operating both simultaneously, a second lever for operating the toggle levers, and a spring interposed between the second lever and one of the toggle levers, substantially as and for the purpose set forth.

10. In a carrier, the combination of a support, a pair of diametrically opposite jaws movable rectilinearly toward and away from each other, a pair of levers having their opposite arms connected to said jaws and their adjacent arms formed with rounding bearings for engaging one another, substantially as and for the purpose specified.

11. In a carrier, the combination of a support, a pair of diametrically opposite jaws, a pair of levers having their opposite arms

formed with rounding bearings for engaging one another, a second lever for operating the toggle levers, and a spring interposed between the second lever and one of the toggle levers, substantially as and for the purpose set forth.

12. In a carrier, the combination of a support, a grasping jaw, a second jaw movable rectilinearly toward and away from the former jaw and provided with a cut-out, and an operating lever pivoted to said support and formed with an arm arranged in said cut-out in the second jaw, substantially as and for the purpose specified.

13. In a carrier, the combination of a support, a grasping jaw, a second jaw movable rectilinearly toward and away from the former jaw and a lever pivoted to the support for operating the second jaw, and a second lever loosely pivoted to the former lever and provided with a shoulder for engaging a corresponding shoulder on the former lever, substantially as and for the purpose set forth.

14. In a carrier, the combination of a support, a grasping jaw, a second jaw movable rectilinearly toward and away from the former jaw and a lever pivoted to the support for operating the second jaw, a second lever loosely pivoted to the former lever, and a spring between said levers, substantially as and for the purpose specified.

15. In a carrier, the combination of a support, a grasping jaw, a second jaw movable rectilinearly toward and away from the former jaw and a lever pivoted to the support for operating the second jaw, a second lever loosely pivoted to the former lever and provided with a shoulder for engaging a corresponding shoulder on the former lever, and a spring interposed between said levers, substantially as and for the purpose set forth.

16. In a carrier, the combination of a support, a pair of opposite jaws rectilinearly movable toward and from each other and a pair of levers connected to said jaws for operating the same, an arm provided on one of said levers formed with a rounding socket, and an arm on the other lever formed with a rounding projection for engaging said socket, substantially as and for the purpose specified.

17. In a carrier, the combination of a support, a grasping jaw, a second jaw arranged opposite to the former jaw and mounted on said support and formed with an upright engaging face and an outwardly extending shank provided with a slot, and a lever for operating said jaw formed with an arm registered with the slot in the shank of the jaw, substantially as and for the purpose set forth.

18. In a carrier, the combination of a support, oppositely arranged grasping jaws having upright engaging faces, and shanks extending outwardly from said engaging faces provided with slots, levers for operating said jaws having their opposite arms engaged with the slots, a rounded socket on the adjacent arm of one lever, and a rounded projection

on the corresponding arm of the other lever for engaging said rounded socket, substantially as and for the purpose specified.

19. In a carrier, the combination of a support, oppositely arranged grasping jaws having upright engaging faces and shanks extending outwardly from said engaging faces provided with slots, levers for operating said jaws having their opposite arms engaged with the slots, a rounded socket on the adjacent arm of one lever, a rounded projection on the corresponding arm of the other lever for engaging said rounded socket, a third lever loosely hinged to one of the former levers, and a spring interposed between the latter lever and the lever to which it is hinged, substantially as and for the purpose set forth.

20. In a carrier, the combination of a support, having a series of oppositely arranged guides, a series of grasping jaws arranged in pairs disposed at an angle with each other and having shanks reciprocally movable in said guides, levers, substantially as described, for approximating the jaws of each pair toward each other, and a cam for operating said levers, substantially as and for the purpose specified.

21. In a carrier, the combination with a supporting frame; of a pair of reciprocally movable grasping jaws, and a pair of pivoted engaging levers mounted above said jaws, substantially as and for the purpose set forth.

22. In a carrier, the combination with a supporting frame; of a pair of reciprocally movable grasping jaws, a gage above said jaws for bringing into alignment the tops of the articles engaged thereby, and a guard depending from said gage for aiding in the adjustment of the articles engaged by said jaws, substantially as and for the purpose set forth.

23. In a carrier, the combination with a supporting frame; of a pair of lengthwise moving grasping jaws, and an arm above the grasping jaws extending laterally beyond their vertical plane, and a guard having one end fixed to the gage arm and the other extended downwardly beneath the plane of the engaging arm, substantially as and for the purpose specified.

24. In a carrier, the combination of a supporting frame formed with a guide groove and a guide slot; of a pair of grasping jaws supported on the frame a plate having one end movable in the slot and the other provided with a tongue movable in the groove, a shoulder on the former end of the plate adapted to engage the wall of the slot, a pair of movable levers supported on said plate, and means, substantially as described, for operating said levers, substantially as and for the purpose set forth.

25. In a carrier, the combination of a supporting frame formed with a guide groove and a guide slot; of a pair of grasping jaws supported on the frame a plate having one end movable in the slot and the other provided with a tongue movable in the groove, a shoulder

der on the former end of the plate adapted to engage the wall of the slot, a pair of movable levers supported on said plate, springs having one end secured to the plate and the other bearing against said arms for approximating their free extremities, a cam for engaging said arms, and separating said extremities, and means, substantially as described, for operating said cam, substantially as and for the purpose specified.

26. In a carrier, the combination of a support formed with a guide groove and a guide slot; of a pair of grasping jaws supported on the frame a plate having one end movable in the slot and the other provided with a tongue movable in the groove, a shoulder on the former end of the plate adapted to engage the wall of the slot, a pair of movable levers supported on said plate, means substantially as described for operating said levers, spring arms having one extremity mounted on said plate and the other bearing against said levers, stops for said spring arms, and means substantially as described for separating the levers against the action of the springs, substantially as and for the purpose set forth.

27. In a carrier, the combination with a supporting frame; of a pair of lengthwise moving grasping jaws, a support beneath said grasping jaws for supporting the articles engaged thereby, a rod secured to said support and provided with an adjusting shoulder, a shell incasing said rod provided with a shoulder, a second shoulder on the rod, and a spring interposed between the shoulder on the shell and said second shoulder on the rod, substantially as and for the purpose specified.

28. In a carrier, the combination of a movable frame provided with engaging shoulders, a rectilinearly movable rod for engaging said shoulders, a lever having one extremity hinged and its opposite extremity engaged with said rod for operating the same, and a spring for actuating said lever, substantially as and for the purpose set forth.

29. In a carrier, the combination of a movable frame, provided with engaging shoulders, a rectilinearly movable rod for engaging said shoulders, a lever having one extremity hinged and its opposite extremity engaged with said rod, a spring for actuating said lever, a second lever connected to the former lever, and a cam for engaging the latter lever, substantially as and for the purpose set forth.

30. In a carrier, the combination with a frame, grasping jaws on said frame, a support for the articles engaged by said jaws provided with a depending shank, a movable lever for supporting said shank, a cam for forcing the lever to its operative position, and a spring connected to actuate said cam, substantially as and for the purpose specified.

31. In a carrier, the combination with a frame, grasping jaws on said frame, a support for the articles engaged by said jaws provided with a depending shank, a movable lever for supporting said shank, a cam for forcing the

lever to its operative position, a pinion connected to actuate said cam, and a rack for rocking the pinion, substantially as and for the purpose set forth.

32. The herein described support, the same comprising a rocking lever, a supporting plate having a shank adjustably mounted on one end of said lever, a cam for engaging and depressing the other end of the lever, and a spring connected to actuate said cam, substantially as and for the purpose specified.

33. In a carrier, the combination with a frame, grasping jaws on said frame, a support for the articles engaged by said jaws provided with a depending shank, a movable lever for supporting said shank, a clamp for securing the shank to the lever in its adjusted position, and a sliding block having a bearing face for engaging said lever, substantially as and for the purpose set forth.

34. In a carrier, the combination with a frame, grasping jaws on said frame, a support for the articles engaged by said jaws provided with a depending shank, a movable lever for supporting said shank, a clamp for securing the shank to the lever in its adjusted position, a sliding block having a bearing face for engaging said lever, and a hinged lever connected to the sliding block for operating the same, substantially as and for the purpose specified.

35. In a carrier, the combination with a frame, grasping jaws on said frame, a support for the articles engaged by said jaws provided with a depending shank, a movable lever for supporting said shank, a clamp for securing the shank to the lever in its adjusted position, a sliding block having a bearing face for engaging said lever, a hinged lever connected to the sliding block for operating the same, and a cam for operating said lever formed with an inwardly extending end —E¹⁵—, substantially as and for the purpose set forth.

36. The herein described support, the same comprising a rocking lever, a supporting plate having a shank adjustably mounted on one end of said lever, a cam for engaging and depressing the other end of the lever, and a sliding block having a bearing face for engaging said lever, substantially as and for the purpose specified.

37. In a carrier, the combination with a frame, grasping jaws on said frame, a support for the articles to be engaged by said jaws provided with a depending shank, a movable lever having one end connected to said shank for supporting the same, a cam for engaging the opposite end of said lever, a pinion connected to the cam, and a sliding block formed with rack teeth for engaging and rotating said pinion, substantially as and for the purpose set forth.

38. In a carrier, the combination with a frame, grasping jaws on said frame, a support for the articles to be engaged by said jaws provided with a depending shank, a movable lever having one end connected to said shank for supporting the same, a cam for engaging the opposite end of said lever, a pinion connected to the cam, a sliding block formed with rack teeth for engaging and rotating said pinion, a spring connected to the cam, and an engaging face on the sliding block for engaging the lever and rocking the same in an opposite direction, substantially as and for the purpose specified.

In testimony whereof we have hereunto signed our names, in the presence of two attesting witnesses, at Rochester, in the county of Monroe, in the State of New York, this 17th day of June, 1892.

SOL WILE.
HENRY LA CASSE.

Witnesses:

FRANK M. GOFF,
F. W. WHIPPLE.